

- 1 1. In a network having a plurality of nodes, a method for discovering a neighbor node
2 comprising:
3 receiving from a neighbor node a neighbor discovery message;
4 periodically transmitting a predetermined number of neighbor discovery messages
5 that each include an identity of the neighbor node in response to the received neighbor
6 discovery message; and
7 after transmitting the predetermined number of neighbor discovery messages,
8 transmitting neighbor discovery messages that omit the identity of the neighbor node
9 until another neighbor discovery message is received from the neighbor node that
10 indicates a change in a communications state associated with the neighbor node.
- 1 2. The method of claim 1 further comprising determining that the neighbor node is in a lost
2 state if a message used for neighbor node discovery is not received from the neighbor
3 node within a predetermined time period.
- 1 3. The method of claim 2 wherein the predetermined time period has a duration that
2 approximately equals the duration of a time interval between subsequent transmissions of
3 neighbor discovery messages multiplied by the predetermined number.
- 1 4. The method of claim 1 wherein each periodically transmitted neighbor discovery
2 message includes a list of neighbor nodes that are identified as being in a heard state
3 within a predetermined time period.
- 1 5. The method of claim 1 further comprising identifying the neighbor node as being in a
2 symmetric state if a neighbor discovery message received by a particular node includes

an identity of the particular node in a list of neighbor nodes identified by the neighbor node as being in a heard state.

6. The method of claim 5 further comprising subsequently transmitting by the particular node a neighbor discovery message that omits the identity of the neighbor node from that neighbor discovery message in response to identifying the neighbor node as being in the symmetric state.

7. The method of claim 5 further comprising subsequently transmitting by the particular node a neighbor discovery message that includes the identity of the neighbor node so that other nodes in the network can identify the neighbor node as having established a symmetric link with the particular node.

8. The method of claim 1 wherein each transmitted neighbor discovery message includes a list of neighbor nodes that are identified as being in a heard state and a list of neighboring nodes that are identified as being in a lost state.

9. The method of claim 8 wherein each transmitted neighbor discovery message includes a list of neighboring nodes that are identified as being in a symmetric state.

10. A network comprising:

a node (i) receiving from a neighbor node a neighbor discovery message, (ii) periodically transmitting a predetermined number of neighbor discovery messages that each include an identity of the neighbor node in response to the received neighbor discovery message, and (iii) after transmitting the predetermined number of neighbor discovery messages, transmitting neighbor discovery messages that omit the identity of

7 the neighbor node until another neighbor discovery message is received from the
8 neighbor node that indicates a change in a communications state associated with the
9 neighbor node.